

CLAIMS

1. (Currently Amended) A Control loop for the conversion of an input signal ~~(IN)~~, by multiplication by an integrator value ~~(IW)~~, to an output signal ~~(OUT)~~ that exhibits on average a constant reference value ~~(REF)~~, comprising: having

a first multiplication element ~~(4)~~ for multiplication of the input signal ~~(IN)~~ by the integrator value ~~(IW)~~;

a difference element ~~(2)~~ for formation of a difference between the output signal ~~(OUT)~~ and the reference value ~~(REF)~~; and

an integrator element ~~(3)~~ for the formation of the integrator value ~~(IW)~~ from an integrator input signal,

where ~~characterized in that~~ a second multiplication element ~~(5)~~ is provided between the difference element ~~(2)~~ and the integrator element ~~(3)~~ for the formation of the integrator input signal from the difference weighted with a weighting factor ~~(GF)~~ derived from the integrator value ~~(IW)~~.

2. (Currently Amended) The Control loop of according to cClaim 1, where ~~characterized in that~~ a division element ~~(6)~~ is provided for the calculation of the weighting factor ~~(GF)~~ by division of the integrator value ~~(IW)~~ by the reference value ~~(REF)~~.

3. (Currently Amended) The Control loop according to of cclaim 2, where ~~characterized in that~~ a multiplication unit ~~(7)~~ is connected between the integrator element ~~(3)~~ and the second multiplication element ~~(5)~~ for the multiplication of the integrating circuit input signal by a constant factor ~~(K)~~.

4. (Currently Amended) The Control loop for the conversion of an input signal (~~IN~~), by multiplication by an integrator value (~~IW~~), to an output signal (~~OUT~~) that exhibits on average a constant reference value (~~REF~~), comprising~~having~~

 a multiplication element (~~4~~) for the multiplication of the input signal (~~IN~~) by the integrator value (~~IW~~);

 a difference element (~~2~~) for the formation of a difference between the output signal (~~OUT~~) and the reference value (~~REF~~); and

 an integrator element (~~3~~) for the formation of the integrator value (~~IW~~) from an integrator input signal,

where ~~characterized in that~~ a multiplication unit (~~9~~) is provided for the scaling of the input signal (~~IN~~) with a value determined by a counter (~~8~~), which is connected to an output (~~UA~~) of the integrator element (~~3~~) and counts the number of passages of the integrator value (~~IW~~) beyond a lower and an upper threshold, the multiplication unit and the multiplication element being connected in series.

5. (Currently Amended) The Control loop of according to Claim 4, where ~~characterized in that~~ a further multiplication unit (~~10~~) is connected between the integrator element (~~3~~) and the difference element (~~2~~) for the multiplication of the integrating circuit input signal by a constant factor (~~K~~).

6. (Currently Amended) The Control loop of according to Claim 5, where ~~characterized in that~~ the multiplication unit (~~7; 10~~) is made as a shift register.

7. (Currently Amended) The Control loop of according to cClaim 5, where characterized
~~in that~~ the constant factor (~~K~~) exhibits a value in the buildup phase of the control loop that is
different from the value in the steady state.